

28 September 1956

MEMORANDUM FOR THE RECORD

25X1A5a1 SUBJECT: Report of TDY Trip to [REDACTED] (17 September - 22 September)

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Since the evaluation of the GPT-750 transmitter was at a standstill because the transmitter proved to be too difficult to keep in repair, the persons concerned decided to have [REDACTED] take it to the factory at [REDACTED], for modification and repair.

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Accordingly, on the 17th of September these two persons left Washington, D. C. with the transmitter in an Agency vehicle and brought it to the [REDACTED]. Arriving at Manassas at 1630, we were met by Mr. [REDACTED] group, and after unloading the transmitter, it was 1700, quitting time.

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Tuesday, the 18th, most of the morning was spent getting the transmitter to work. Listing most of the troubles:

- A. Filament transformer (T-603) inoperative. This was the second transformer put into the transmitter [REDACTED]. A third was installed on Tuesday at the factory. After about a minute of operating, this third unit went bad. An investigation showed a shorted filament in one of the high voltage rectifier tubes. The tube was replaced and a fourth transformer was installed.
- B. The power amplifier filament transformer (T-601) was found to be wired incorrectly when the transmitter was changed from 110v to 220 volt operation. Corrected the wiring.
- C. The co-axial cable from the transmitter to the TAC-1 antenna tuner was shorted. A new cable was made up and substituted.
- D. A near broken high voltage lead was repaired.
- E. A universal connector on the main shaft of the TAC-1 roller inductor was loose.
- F. Replaced the "Drive" potentiometer in the screen grid circuit. The faulty one was non-linear.

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After these troubles were cleared, the transmitter was in operating condition. The transmitter was left in a keydown condition during the afternoon of Tuesday for a test and while this was going on talks were had by Mr. [REDACTED] and Mr. [REDACTED] concerning the AM and MRK units. Mr. [REDACTED] spent this time conferring on the proposed High Power Patch Panel. Towards the end of this day we visitors were shown the plant and this concluded Tuesday. 25X1A9a

The morning of Wednesday was spent in discussing the tests to be performed after modification and in the afternoon concentrated work was being done on the transmitter. It was here learned that a field modification kit is available for all the transmitters as old as ours, however, we were to get a full-fledged factory modification bringing the transmitter up to date and in the same condition as a new one. The sheet metal work was also started on this day.

The modification to the GPT-750 performed at the factory were:

- A. Changed type of interlock switches.
- B. SSB-AM switch installed along with all parts necessary to place the transmitter in a linear condition.
- C. New thermocouple installed. Not a modification, but a necessary repair.
- D. Sliders on all decks were made to operate positively.
- E. A test key was installed
- F. A grounding facility was installed
- G. The output connector spring was re-mounted to give a better connection.
- H. A new capacitor for the Antenna Loading Circuit with a three-position switch was installed. Provided to match a wider range of antenna impedances.

After these modifications were completed on Thursday afternoon, a series of tests were run on the transmitter. During this test phase, these troubles were found and corrected:

- A. The HF ammeter thermocouple was installed backwards causing the meter to indicate negatively.
- B. The three-position switch in the Antenna Tube Capacitor was thought to have been wired incorrectly because a copper strap carrying the HF power to this capacitor burned out. Subsequent investigation proved instead that a resonant circuit was present and this was the reason for the burned out copper strap. Since this difficulty, the [REDACTED] personnel have devised a means of band switching that positively dis-allows this condition to appear.

C. Two of the micro-switch type interlocks were wired in backwards.

D. Leads on the single sideband switch were not soldered.

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E. The test key did not work correctly. We and the [REDACTED] personnel are not convinced this key is the best available and a better substitute will be installed later.

Continuing with the tests after the troubles listed above had been eliminated, the transmitter was loaded to full output into a fifty ohm dissipator resistor and keyed over the full frequency range. This testing took the remainder of the day and part of Friday morning.

On Friday, about noon-time, we were satisfied that there was nothing further lacking about the transmitter while testing in the manner just described. A suggestion was made to perform the same tests with the exception being; loading into a six-hundred ohm resistive load through the [REDACTED] TAC-1 coupler. Approximately half-way through this series of tests it was found that the back-lash in the PMO (Variable Frequency Oscillator) was excessive (3 kcs) and a new PMO was installed. The tests continued, increasing in frequency from two to thirty-two megacycles. Somewhere, the exact frequency was not noted, the TAC-1 unit began arcing and it was found to have faulty tap connection to the split main inductor. Because of this arcing and because various other components in the TAC-1 had been previously damaged, it was decided to discontinue evaluating the transmitter, leave the TAC-1 unit at the factory for repair, load the transmitter into the truck and return home Saturday. Since the transmitter had worked to the satisfaction of all concerned on all frequencies when coupled directly into a fifty-ohm load, plus the fact that it was about 7 p.m. and the Plant did not work on Saturday, this suggestion was approved by all, acted upon and we returned Saturday, the 22nd of September.

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On Monday, the 24th, the GPT-750 transmitter was installed at [REDACTED] where it is now undergoing a second series of evaluation test.

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